

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listing, of claims in the application.

Listing of the Claims:

1. (Cancelled)
2. (Currently amended) A method according to Claim 34 ~~35~~ wherein the step of ~~processing of the approximate results incorporates~~ updating orthogonality is implemented using small updates to produce decorrelation in a second order statistics procedure.
3. (Currently amended) A method according to Claim 2 wherein the step of updating orthogonality is implemented by a technique referred to as Jacobi and involving diagonalisation of a symmetric matrix by determining and applying ~~rotations~~ small rotation angles iteratively until off-diagonal elements of the matrix become substantially equal to zero.
4. (Currently amended) A method according to Claim 3 ~~including a second stage of initialisation using results obtained for each leading window to initialise independence of decorrelated signals associated with the respective following window, this second stage wherein the step of updating independence is implemented~~ using independent component analysis (ICA) to apply small rotation updates ~~to initialise signals in a higher than second order statistics procedure to produce signal independence and separation.~~
5. (Previously presented) A method according to Claim 4 wherein the higher than second order statistics procedure is at least one of a third order and a fourth order statistics procedure.
6. (Currently amended) A method according to Claim 34 35 including:
 - a) an acquisition phase in which signals are separated and desired signals are identified among the separated signals, and

- b) a subsequent phase in which only desired signals are processed to separation.
7. (Currently amended) A method according to Claim 34 35 wherein the signals associated with pairs of windows are statistical measures of data in the windows.
8. (Currently amended) A method according to Claim 34 35 incorporating:
- a) an acquisition stage of processing a first leading window of data to obtain first ~~results~~ statistics, and
 - b) a subsequent stage of processing following windows by iteratively updating immediately preceding ~~results~~ statistics using subsequent data snapshots to produce snapshot ~~results~~ statistics and combining the snapshot ~~results~~ statistics with the immediately preceding ~~results~~ statistics, the immediately preceding ~~results~~ statistics being those obtained in a respective immediately preceding iterative update if any and being the first ~~results~~ statistics otherwise.
9. (Currently amended) A method according to Claim 8 wherein prior to combining the snapshot ~~results~~ statistics with the immediately preceding ~~results~~ statistics, the immediately preceding ~~results~~ statistics are weighted with a forget factor to implement an exponentially fading following window
10. Cancelled.
11. Cancelled.
12. Cancelled.
13. (Currently amended) Computer apparatus according to Claim 42 36 programmed to update orthogonality ~~of the approximate results~~ using small updates to produce decorrelation in a second order statistics procedure.
14. (Currently amended) Computer apparatus according to Claim 13 programmed to update orthogonality by a technique referred to as Jacobi and involving diagonalisation of a

symmetric matrix by determining and applying ~~rotations~~ small rotation angles iteratively until off-diagonal elements of the matrix become substantially equal to zero.

15. (Currently amended) Computer apparatus according to Claim 14 programmed to ~~implement a second stage of initialisation using results obtained for each leading window to initialise independence of decorrelated data associated with the respective following window, this second stage involving~~ update independence using ICA to apply small rotation updates to initialised data in a higher than second order statistics procedure to produce signal independence and separation.
16. (Previously presented) Computer apparatus according to Claim 15 wherein the higher than second order statistics procedure is at least one of a third order and a fourth order statistics procedure.
17. (Currently amended) Computer apparatus according to Claim ~~12- 36~~ programmed to implement an acquisition phase in which signals are separated and desired signals are identified among the separated signals, and a subsequent phase in which only desired signals are processed to separation.
18. (Currently amended) Computer apparatus according to Claim ~~12- 36~~ wherein the signals associated with windows of data are statistical measures of data in the windows.
19. (Currently amended) Computer apparatus according to Claim ~~12 36~~ programmed to implement an acquisition stage of processing a first leading window of data to obtain first ~~results~~ statistics, and a subsequent stage of processing following windows by iteratively updating immediately preceding ~~results~~ statistics using subsequent data snapshots to produce snapshot ~~results~~ statistics and combining the snapshot ~~results~~ statistics with the immediately preceding ~~results~~ statistics, the immediately preceding ~~results~~ statistics being those obtained in a respective immediately preceding iterative update if any and being the first ~~results~~ statistics otherwise.

20. (Currently amended) Computer apparatus according to Claim 19 programmed to implement an exponentially fading following window by weighting the immediately preceding ~~results~~ statistics with a forget factor prior to combining the snapshot ~~results~~ statistics with the immediately preceding ~~results~~ statistics.
21. Cancelled.
22. Cancelled.
23. Cancelled.
24. (Currently amended) A computer software product according to Claim ~~23~~ 37 wherein the computer readable instructions also provide a means for controlling the computer apparatus to update orthogonality ~~process the approximate results using small updates to~~ update orthogonality and produce decorrelation in a second order statistics procedure.
25. (Currently amended) A computer software product according to Claim 24 wherein the computer readable instructions also provide a means for controlling the computer apparatus to update orthogonality by a technique referred to as Jacobi and involving diagonalisation of a symmetric matrix by determining and applying ~~rotations~~ small rotation angles iteratively until off-diagonal elements of the matrix become substantially equal to zero.
26. (Currently amended) A computer software product according to Claim 24 wherein the computer readable instructions also provide a means for controlling the computer apparatus to ~~implement a second stage of initialisation using results obtained for each leading window to initialise~~ update independence of decorrelated data associated with the ~~respective following window, this second stage using ICA to apply small rotation updates to initialised data in a higher than second order statistics procedure to produce signal independence and separation.~~

27. (Previously presented) A computer software product according to Claim 26 wherein the higher than second order statistics procedure is at least one of a third order and a fourth order statistics procedure.
28. (Currently amended) A computer software product according to Claim ~~23~~ 37 wherein the computer readable instructions also provide a means for controlling the computer apparatus to implement an acquisition phase in which signals are separated and desired signals are identified among the separated signals, and a subsequent phase in which only desired signals are processed to separation.
29. (Currently amended) A computer software product according to Claim ~~23~~ 37 wherein the signals associated with windows of data are statistical measures of data in the windows.
30. (Currently amended) A computer software product according to Claim ~~23~~ 37 wherein the computer readable instructions also provide a means for controlling the computer apparatus to implement an acquisition stage of processing a first leading window of data to obtain first ~~results~~ statistics, and a subsequent stage of processing following windows by iteratively updating immediately preceding ~~results~~ statistics using subsequent data snapshots to produce snapshot ~~results~~ statistics and combining the snapshot ~~results~~ statistics with the immediately preceding ~~results~~ statistics, the immediately preceding ~~results~~ statistics being those obtained in a respective immediately preceding iterative update if any and being the first ~~results~~ statistics otherwise.
31. (Currently amended) A computer software product according to Claim 30 wherein the computer readable instructions also provide a means for controlling the computer apparatus to implement an exponentially fading following window by weighting the immediately preceding ~~results~~ statistics with a forget factor prior to combining the snapshot ~~results~~ statistics with the immediately preceding ~~results~~ statistics.
32. Cancelled.

33. Cancelled.
34. Cancelled.
35. (New) A method for dynamic blind signal separation having the following steps:
- a) processing signals associated with pairs of windows of data each having a leading window and a following window;
 - b) producing orthogonality initialised signals by using results obtained in connection with the respective leading window to initialise orthogonality of signals associated with the following window;
 - c) updating orthogonality of initially orthogonalised signals using following window data to produce updated orthogonalised signals;
 - d) producing independence initialised signals by using further results obtained in connection with the respective leading window to initialise independence of updated orthogonalised signals; and
 - e) updating independence of independence initialised signals using following window data to produce independence updated signals designated as separated signals.
36. (New) Computer apparatus for dynamic blind signal separation programmed to process signals associated with windows of data wherein the computer apparatus is also programmed to:
- a) process signals associated with pairs of windows of data each having a leading window and a following window;
 - b) use results obtained in connection with the respective leading window to initialise orthogonality of signals associated with the following window to provide orthogonality initialised signals;
 - c) update orthogonality of orthogonality initialised signals on the basis of the following window to produce orthogonality updated signals;

- d) use further results obtained in connection with the respective leading window to initialise independence of orthogonality updated signals to produce independence initialised signals; and
 - e) update independence of independence initialised signals on the basis of the following window to produce independence updated signals designated as separated signals.
37. (New) A computer software product comprising a computer readable medium containing computer readable instructions for controlling operation of computer apparatus to implement dynamic blind signal separation by processing signals associated with windows of data, wherein the computer readable instructions provide a means for controlling the computer apparatus to:
- a) process signals associated with pairs of windows of data each having a leading window and a following window;
 - b) use results obtained in connection with the respective leading window to initialise orthogonality of signals associated with the following window to provide orthogonality initialised signals;
 - c) update orthogonality of orthogonality initialised signals on the basis of the following window to produce orthogonality updated signals;
 - d) use further results obtained in connection with the respective leading window to initialise independence of orthogonality updated signals to produce independence initialised signals; and
 - e) update independence of independence initialised signals on the basis of the following window to produce independence updated signals designated as separated signals.
38. (New) A method for dynamic blind signal separation including processing signals associated with pairs of windows of data, the method also including:
- a) an acquisition stage of processing a first leading window of data to obtain first results comprising a mean vector of signal samples, a covariance matrix of a data matrix of the first leading window, and a fourth order tensor obtained from a

moment of signal vectors derived by decorrelation and normalisation of the data matrix; and

- b) a subsequent stage of processing following windows by iteratively updating immediately preceding results using subsequent data snapshots to produce snapshot results and combining the snapshot results with the immediately preceding results, the immediately preceding results being those obtained in a respective immediately preceding update if any and being the first results otherwise.

39. (New) A method for dynamic blind signal separation including processing signals associated with pairs of windows of data, the method also including:

- a) an acquisition stage of processing a first leading window of data to obtain first results; and
- b) a subsequent stage of processing following windows by:
 - i) iteratively updating immediately preceding results using subsequent data snapshots to produce snapshot results comprising a mean snapshot vector and a snapshot covariance matrix, a decorrelated and normalised snapshot equivalent providing signal vectors from which to obtain their moment as a fourth order tensor update, the immediately preceding results being those obtained in a respective immediately preceding update if any and being the first results otherwise;
 - ii) weighting the snapshot results with a forget factor p and weighting the immediately preceding results with a further forget factor $(1-p)$ to implement an exponentially fading window, where $0 < p < 1$; and
 - iii) combining the weighted snapshot results with the weighted immediately preceding results.

40. (New) Computer apparatus for dynamic blind signal separation programmed to process signals associated with windows of data, wherein the computer apparatus is also programmed to implement:

- a) an acquisition stage of processing a first leading window of data to obtain first results comprising a mean vector of signal samples, a covariance matrix of a data matrix of the first leading window, and a fourth order tensor obtained from a moment of signal vectors derived by decorrelation and normalisation of the data matrix; and
 - b) a subsequent stage of processing following windows by iteratively updating immediately preceding results using subsequent data snapshots to produce snapshot results and combining the snapshot results with the immediately preceding results, the immediately preceding results being those obtained in a respective immediately preceding update if any and being the first results otherwise.
41. (New) Computer apparatus for dynamic blind signal separation programmed to process signals associated with windows of data, wherein the computer apparatus is also programmed to implement:
- a) an acquisition stage of processing a first leading window of data to obtain first results; and
 - b) a subsequent stage of processing following windows by:
 - i) iteratively updating immediately preceding results using subsequent data snapshots to produce snapshot results comprising a mean snapshot vector and a snapshot covariance matrix, a decorrelated and normalised snapshot equivalent providing signal vectors from which to obtain their moment as a fourth order tensor update, the immediately preceding results being those obtained in a respective immediately preceding update if any and being the first results otherwise;
 - ii) weighting the snapshot results with a forget factor p and weighting the immediately preceding results with a further forget factor $(1-p)$ to implement an exponentially fading window, where $0 < p < 1$; and
 - iii) combining the weighted snapshot results with the weighted immediately preceding results.

42. (New) A computer software product comprising a computer readable medium containing computer readable instructions for controlling operation of computer apparatus to implement dynamic blind signal separation by processing signals associated with windows of data, wherein the computer readable instructions provide a means for controlling the computer apparatus to implement:
- a) an acquisition stage of processing a first leading window of data to obtain first results comprising a mean vector of signal samples, a covariance matrix of a data matrix of the first leading window in each case, and a fourth order tensor obtained from a moment of signal vectors derived by decorrelation and normalisation of the data matrix; and
 - b) a subsequent stage of processing following windows by iteratively updating immediately preceding results using subsequent data snapshots to produce snapshot results and combining the snapshot results with the immediately preceding results, the immediately preceding results being those obtained in a respective immediately preceding update if any and being the first results otherwise.
43. (New) A computer software product comprising a computer readable medium containing computer readable instructions for controlling operation of computer apparatus to implement dynamic blind signal separation by processing signals associated with windows of data, wherein the computer readable instructions provide a means for controlling the computer apparatus to implement:
- a) an acquisition stage of processing a first leading window of data to obtain first results; and
 - b) a subsequent stage of processing following windows by:
 - i) iteratively updating immediately preceding results using subsequent data snapshots to produce snapshot results comprising a mean snapshot vector and a snapshot covariance matrix, a decorrelated and normalised snapshot equivalent providing signal vectors from which to obtain their moment as a fourth order tensor update, the immediately preceding results being those

obtained in a respective immediately preceding update if any and being the first results otherwise;

- ii) weighting the snapshot results with a forget factor p and weighting the immediately preceding results with a further forget factor $(1-p)$ to implement an exponentially fading window, where $0 < p < 1$; and
- iii) combining the weighted snapshot results with the weighted immediately preceding results.